



[4910-13-P]

**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 39**

**[Docket No. FAA-2012-0492; Directorate Identifier 2010-NM-126-AD]**

**RIN 2120-AA64**

**Airworthiness Directives; The Boeing Company Model 747 Airplanes**

**AGENCY:** Federal Aviation Administration (FAA), Department of Transportation (DOT).

**ACTION:** Notice of proposed rulemaking (NPRM).

**SUMMARY:** We propose to supersede an existing airworthiness directive (AD) that applies to certain The Boeing Company Model 747 airplanes. The existing AD currently requires repetitive visual inspections around the bushings of the wing landing gear (WLG) beam outboard end fittings for corrosion, and rework if necessary; and ultrasonic inspections for cracks of the outboard end fittings of the WLG support beams, and rework if necessary. Since we issued that AD, there have been new reports of corrosion damage to the end fittings of the WLG support beams, and one report of subsequent cracking in the end fittings. This proposed AD would add airplanes and repetitive inspections of the outboard end fitting of the left and right WLG support beams for cracks and corrosion, and corrective actions if necessary. We are proposing this AD to detect and correct corrosion and subsequent cracking in the outboard end fittings, which could result in separation of the fitting and damage to adjacent flight control cables and hydraulic systems and consequent reduced controllability of the airplane.

**DATES:** We must receive comments on this proposed AD by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**ADDRESSES:** You may send comments by any of the following methods:

- Federal eRulemaking Portal: Go to <http://www.regulations.gov>. Follow the instructions for submitting comments.
- Fax: 202-493-2251.
- Mail: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.
- Hand Delivery: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

For service information identified in this proposed AD, contact Boeing Commercial Airplanes, Attention: Data & Services Management, P. O. Box 3707, MC 2H-65, Seattle, Washington 98124-2207; telephone 206-544-5000, extension 1, fax 206-766-5680; e-mail [me.boecom@boeing.com](mailto:me.boecom@boeing.com); Internet <https://www.myboeingfleet.com>. You may review copies of the referenced service information at the FAA, Transport Airplane Directorate, 1601 Lind Avenue SW., Renton, Washington. For information on the availability of this material at the FAA, call 425-227-1221.

### **Examining the AD Docket**

You may examine the AD docket on the Internet at <http://www.regulations.gov>; or in person at the Docket Management Facility between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this proposed AD, the regulatory evaluation, any comments received, and other information. The street address for the Docket Office (telephone 800-647-5527) is in the ADDRESSES section. Comments will be available in the AD docket shortly after receipt.

**FOR FURTHER INFORMATION CONTACT:** Bill Ashforth, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue SW., Renton, Washington 98057-3356; phone: (425) 917-6432; fax: (425) 917-6590; e-mail: bill.ashforth@faa.gov.

**SUPPLEMENTARY INFORMATION:**

**Comments Invited**

We invite you to send any written relevant data, views, or arguments about this proposed AD. Send your comments to an address listed under the ADDRESSES section. Include “Docket No. FAA-2012-0492; Directorate Identifier 2010-NM-126-AD” at the beginning of your comments. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of this proposed AD. We will consider all comments received by the closing date and may amend this proposed AD because of those comments.

We will post all comments we receive, without change, to <http://www.regulations.gov>, including any personal information you provide. We will also post a report summarizing each substantive verbal contact we receive about this proposed AD.

**Discussion**

On July 7, 1989, we issued AD 89-15-07, amendment 39-6267 (54 FR 30009, July 18, 1989), for certain Model 747 airplanes. That AD requires visual inspections around the bushings of the wing landing gear for corrosion, and repair if necessary, and ultrasonic inspections for cracks of the outboard end fittings of the WLG support beams, and overhaul if necessary. That AD resulted from a report of a fracture of the outboard end fitting of a left WLG beam. We issued that AD to prevent failure of the outboard end fitting of a WLG beam with possible damage to control cables or hydraulic lines in the area of the landing gear beam.

### **Actions Since Existing AD Was Issued**

Since we issued AD 89-15-07, amendment 39-6267 (54 FR 30009, July 18, 1989), we have received new reports of corrosion damage to the end fittings of the WLG support beams, and one report of subsequent cracking in the end fittings. The end fittings are installed on the outboard ends of the WLG support beams, and they attach to gate fittings installed on the rear wing spars. There are two types of end fittings used—one is a two-piece end fitting installed in a “back to back” configuration; the other is a one-piece end fitting.

Boeing Service Bulletin 747-57-2244, Revision 1, dated July 28, 1988, was referred to in the existing AD for accomplishing the required actions on Model 747 airplanes having line numbers 1 through 695. The terminating action specified in that service bulletin involves replacing each of the end fitting lug bore and bolt hole bushings with new standard or oversize bushings which are installed with sealant to provide better corrosion prevention. That terminating action was incorporated into the design of replacement fittings used on production airplanes having line numbers 696 and subsequent.

Although the terminating action seemed to work well on airplanes having line numbers 1 through 695, recent reports from operators of airplanes having line numbers 696 and subsequent revealed that the problem occurred again. Further investigation revealed that the corrosion started at the lug bore and bushing interface because moisture continued to develop in that area due to exposure of the end fittings to environmental conditions. Subsequently, cracks have occurred at the corroded areas of the end fittings; therefore, the terminating action in that service bulletin is no longer valid because the unsafe condition specified in the existing AD has not been corrected.

## **Relevant Service Information**

Since the issuance of AD 89-15-07, amendment 39-6267 (54 FR 30009, July 18, 1989), Boeing has issued Alert Service Bulletin 747-57A2331, dated November 12, 2009. This new service information is applicable to Model 747 airplanes having line numbers 1 through 1419 inclusive, which includes airplanes on which the terminating action in AD 89-15-07 was done.

We have reviewed Boeing Alert Service Bulletin 747-57A2331, dated November 12, 2009. This service bulletin describes procedures for repetitive detailed and ultrasonic inspections, as applicable, for cracks and corrosion of the end fittings of the left and right WLG support beams; and repetitive detailed inspections of the fillet seal for damage, as applicable. The service information describes necessary actions and options after accomplishing the inspections, depending on the findings and configurations. Those actions and options (including Options 1A and 1B) include the following:

- Repairing or changing each end fitting (by installing higher interference fit bushings on the end fitting), which is identified as “Part 7” of this service bulletin, may be done in lieu of the inspections described previously, but is necessary for findings of cracks or corrosion.

- Repetitively inspecting, as described previously, along with an additional inspection of the fillet seal for damage; and applying corrosion inhibiting compound or doing “Part 7” of this service bulletin, if necessary.

- Doing “Post-Part 7 inspections,” which involves actions similar to the inspections for cracks, corrosion, and damage described previously.

The recommended compliance times follow:

- Detailed and ultrasonic inspections: The initial compliance time for these inspections depends on configuration, and is either (1) 8 years on the end fitting and 18

months after the date on this service bulletin (whichever is later); or (2) 10 years on the end fitting and 24 months after the date on this service bulletin (whichever is later). The repetitive interval also depends on configurations and findings, and ranges between 12 and 24 months.

- “Part 7” of this service bulletin: The initial compliance time is the later of 20,000 total flight cycles on an end fitting, and either 18 or 24 months (depending on configuration). The repetitive interval is either 13,000 or 16,000 flight cycles on an end fitting; depending on configuration.

- “Post-Part 7” inspections: The compliance time is 12 years after the repair or change. The subsequent repetitive intervals range between 12 months and 36 months, depending on findings and configurations.

For airplanes on which any crack, corrosion, or damage is found, the compliance time for “Part 7” or application of corrosion inhibitor is before further flight.

#### **FAA’s Determination**

We are proposing this AD because we evaluated all the relevant information and determined the unsafe condition described previously is likely to exist or develop in other products of the same type design.

#### **Proposed AD Requirements**

This proposed AD would retain certain requirements of the existing AD. This proposed AD would also add airplanes and require accomplishing the actions specified in the service information described previously.

#### **Changes to Existing AD**

We have changed the applicability of AD 89-15-07, amendment 39-6267 (54 FR 30009, July 18, 1989), in this proposed AD to identify model designations as published in the most recent type certificate data sheet for the affected models. We have also changed

the legal name of the manufacturer as published in the most recent type certificate data sheet for the affected airplane models.

This proposed AD would retain certain requirements of AD 89-15-07, amendment 39-6267 (54 FR 30009, July 18, 1989). Since AD 89-15-07 was issued, the AD format has been revised, and certain paragraphs have been rearranged. As a result, the corresponding paragraph identifiers have changed in this proposed AD, as listed in the following table:

**Revised Paragraph Identifiers**

<b>Requirement in AD 89-15-07, Amendment 39-6267 (54 FR 30009, July 18, 1989)</b>	<b>Corresponding requirement in this proposed AD</b>
paragraph A	paragraph (g)
paragraph B	paragraph (g)(1)
paragraph C	paragraph (g)(2)
paragraph D	paragraph (g)(3)

In addition, we have revised paragraph (g)(3) of this proposed AD (which was designated as paragraph D. in the existing AD) to require that if any corrosion is found after the effective date of this proposed AD, rework is required before further flight. We have reduced the compliance time to do the rework from “within 12 months” to “before further flight” because extensive service history has shown that the deferral of known airplane damage such as cracks and corrosion has not provided an acceptable level of safety. Service history has shown that the extent of damage from unrepaired corrosion can not reliably be determined by inspection techniques. The damaged corroded material must first be removed and only then can the remaining material dimensions be accurately compared to the allowable damage limits. The extent of unrepaired corrosion damage can not be accurately determined by current inspection methods. Further, the reliance for operation with known damage is predicated on the adjacent and associated structure

being free from other damage during this time period, which has not been demonstrated by older airplanes.

Depending on airplane configuration, the new proposed inspections would take between 1 and 4 work hours per airplane, at an average labor rate of \$85 per work hour. Based on these figures, the estimated cost of the new inspections specified in this proposed AD for U.S. operators is between \$14,705 and \$58,820, or between \$85 and \$340 per airplane, per inspection cycle.

#### **Difference Between the Proposed AD and the Service Information**

Operators should note that Conditions 6, 13, and 16 of paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 747-57A2331, dated November 12, 2009, specify a detailed inspection. However, the corresponding conditions in the Accomplishment Instructions of this service bulletin specify both detailed and high frequency eddy current (HFEC) inspections. We have confirmed with Boeing that its intent is that this service bulletin specify only a detailed inspection for those conditions.

#### **Costs of Compliance**

We estimate that this proposed AD affects 173 airplanes of U.S. registry. We estimate the following costs to comply with this proposed AD:



### Estimated costs

<b>Action</b>	<b>Labor cost</b>	<b>Parts cost</b>	<b>Cost per product</b>	<b>Cost on U.S. operators</b>
Inspections [retained actions from existing AD 89-15-07, amendment 39-6267 (54 FR 30009, July 18, 1989)]	10 work-hours X \$85 per hour = \$850 per inspection cycle	\$0	\$850 per inspection cycle	\$147,050 per inspection cycle
Inspections [new proposed action]	Up to 67 work-hours X \$85 per hour = \$5,695 per inspection cycle, depending on configuration	\$0	Up to \$5,695 per inspection cycle, depending on configuration	Up to \$985,235 per inspection cycle, depending on configuration

We estimate the following costs to do any necessary repairs/replacements that would be required based on the results of the proposed inspection. We have no way of determining the number of aircraft that might need these repairs/replacements:

### On-condition costs

<b>Action</b>	<b>Labor cost</b>	<b>Parts cost</b>	<b>Cost per product</b>
Repair or replacement	Up to 71 work-hours X \$85 per hour = \$6,035, depending on configuration	Up to \$26,436, depending on configuration	Up to \$32,471, depending on configuration

### Authority for this Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, Section 106, describes the authority of the FAA Administrator. Subtitle VII, Aviation Programs, describes in more detail the scope of the Agency's authority.

We are issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701, “General requirements.” Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

### **Regulatory Findings**

We determined that this proposed AD would not have federalism implications under Executive Order 13132. This proposed AD would not have a substantial direct effect on the States, on the relationship between the national Government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify this proposed regulation:

- (1) Is not a “significant regulatory action” under Executive Order 12866,
- (2) Is not a “significant rule” under the DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979),
- (3) Will not affect intrastate aviation in Alaska, and
- (4) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

### **List of Subjects in 14 CFR Part 39**

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

## **The Proposed Amendment**

Accordingly, under the authority delegated to me by the Administrator, the FAA proposes to amend 14 CFR part 39 as follows:

### **PART 39 - AIRWORTHINESS DIRECTIVES**

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

#### **§ 39.13 [Amended]**

2. The FAA amends § 39.13 by removing airworthiness directive (AD) 89-15-07, Amendment 39-6267 (54 FR 30009, July 18, 1989), and adding the following new AD:

**The Boeing Company:** Docket No. FAA-2012-0492; Directorate Identifier 2010-NM-126-AD.

#### **(a) Comments Due Date**

The FAA must receive comments on this AD action by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

#### **(b) Affected ADs**

This AD supersedes AD 89-15-07, Amendment 39-6267 (54 FR 30009, July 18, 1989).

#### **(c) Applicability**

This AD applies to The Boeing Company Model 747-100, 747-100B, 747-100B SUD, 747-200B, 747-200C, 747-200F, 747-300, 747-400, 747-400D, 747-400F, 747SR, and 747SP series airplanes; certificated in any category; as identified in Boeing Alert Service Bulletin 747-57A2331, dated November 12, 2009.

#### **(d) Subject**

Joint Aircraft System Component (JASC)/Air Transport Association (ATA) of America Code 57, Wings.

**(e) Unsafe Condition**

This AD was prompted by new reports of corrosion damage to the end fittings of the wing landing gear (WLG) support beams, and one report of subsequent cracking in the end fittings. We are issuing this AD to detect and correct corrosion and subsequent cracking in the outboard end fittings, which could result in separation of the fitting and damage to adjacent flight control cables and hydraulic systems and consequent reduced controllability of the airplane.

**(f) Compliance**

You are responsible for having the actions required by this AD performed within the compliance times specified, unless the actions have already been done.

**(g) Retained Repetitive Inspections with Revised Compliance Times**

This paragraph restates the requirements of paragraphs A., B., C., and D., of AD 89-15-07, Amendment 39-6267 (54 FR 30009, July 18, 1989): For airplanes identified in Boeing Service Bulletin 747-57-2244, Revision 1, dated July 28, 1988: Prior to the accumulation of 30,000 flight hours or 8 years in service, whichever occurs first; or within the next 14 months after August 22, 1989 (the effective date of AD 89-15-07); whichever occurs later; visually inspect around the fitting lug bushings at the wing landing gear (WLG) beam outboard end fittings for corrosion, and ultrasonically inspect the WLG beam outboard end fittings for cracks, in accordance with Boeing Service Bulletin 747-57-2244, Revision 1, dated July 28, 1988. Accomplishing the initial inspections required by paragraph (j) of this AD terminates the inspections required by this paragraph.

(1) If no cracking or corrosion is found, repeat the inspections at intervals not to exceed 18 months until paragraph (j) of this AD has been accomplished.

(2) If cracking is found, prior to further flight, remove the WLG beam outboard fitting, and rework, in accordance with Boeing Service Bulletin 747-57-2244, Revision 1, dated July 28, 1988.

(3) If only corrosion is found, within the next 12 months, rework in accordance with Boeing Service Bulletin 747-57-2244, Revision 1, dated July 28, 1988. The ultrasonic inspections for cracks required by paragraph (g) of this AD must be accomplished at intervals not to exceed 6 months until the rework is accomplished. For any corrosion that is found after the effective date of this AD, the rework must be done before further flight.

**(h) Retained Terminating Action**

This paragraph restates the requirements of paragraph E., of AD 89-15-07, Amendment 39-6267 (54 FR 30009, July 18, 1989): Terminating action for the inspections required by paragraph (g) of this AD consists of rework of the WLG beam outboard fittings, in accordance with Boeing Service Bulletin 747-57-2244, Revision 1, dated July 28, 1988.

**(i) New Compliance Times for This AD**

For all the actions identified in paragraphs (j) through (t) of this AD, do the actions at the applicable time specified in paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 747-57A2331, dated November 12, 2009. Where paragraph 1.E., “Compliance” of this service bulletin specifies a compliance time relative to the original issue date of the service bulletin, this AD requires compliance within the specified compliance time after the effective date of this AD.

**(j) New Repetitive Inspections for Groups 1 through 5 Airplanes**

For Groups 1 through 3 airplanes, Configurations 1 and 2; and Groups 4 and 5 airplanes: Do detailed and ultrasonic inspections of the end fittings for cracks and

corrosion, in accordance with Part 1 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-57A2331, dated November 12, 2009.

**(k) New Inspections for No Crack or Corrosion Findings for Groups 1 through 5 Airplanes**

If no crack or corrosion is found during any inspection required by paragraph (j) of this AD, do either of the actions required by paragraph (k)(1) or (k)(2) of this AD.

(1) Repeat the detailed and ultrasonic inspections of the end fittings for cracks and corrosion, in accordance with Part 1 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-57A2331, dated November 12, 2009.

(2) Do a detailed inspection of the end fittings for fillet seal damage and for cracks and corrosion, in accordance with Part 2 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-57A2331, dated November 12, 2009.

(i) If no fillet seal damage, crack, or corrosion is found: Repeat the inspection required by paragraph (k)(2) of this AD.

(ii) If any fillet seal damage is found, but no crack or corrosion is found: Remove the fillet seal, and do detailed and HFEC inspections of each end fitting for cracks and corrosion, in accordance with Part 2 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-57A2331, dated November 12, 2009.

(A) If any crack or corrosion is found: Repair or change the end fitting, in accordance with paragraph (l) of this AD.

(B) If no crack or corrosion is found: Apply corrosion inhibiting compound on each end fitting, in accordance with Part 2 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-57A2331, dated November 12, 2009; and do detailed and HFEC inspections of each end fitting for cracks and corrosion, in accordance with Part 3 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-57A2331, dated November 12, 2009.

(1) If no crack or corrosion is found: Apply corrosion inhibiting compound on each end fitting, in accordance with Part 3 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-57A2331, dated November 12, 2009, and thereafter repeat the inspections required by paragraph (k)(2)(ii)(B) of this AD.

(2) If any crack or corrosion is found: Repair or change the end fitting, in accordance with paragraph (l) of this AD.

**(l) New Repair for Crack or Corrosion Findings for Groups 1 through 5 Airplanes**

If any crack or corrosion is found during any inspection required by paragraph (j) or (k) of this AD: Repair or change the end fitting, in accordance with Part 7 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-57A2331, dated November 12, 2009. After accomplishing the repair or change in accordance with Part 7 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-57A2331, dated November 12, 2009, do the applicable actions required by paragraph (j) of this AD.

**(m) New Repetitive Inspections and Corrective Actions for Group 6 Airplanes**

For Group 6 airplanes: Do a detailed inspection of the end fittings for fillet seal damage and for cracks and corrosion, in accordance with Part 1 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-57A2331, dated November 12, 2009.

(1) If no fillet seal damage, crack, or corrosion is found: Do the detailed inspection of the end fittings for fillet seal damage and for cracks and corrosion, in accordance with Part 2 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-57A2331, dated November 12, 2009.

(i) If no fillet seal damage, crack, or corrosion is found: Repeat the detailed inspection required by paragraph (m)(1) of this AD.

(ii) If any fillet seal damage is found, but no crack or corrosion is found: Remove the fillet seal, and do detailed and HFEC inspections of each end fitting for cracks and

corrosion, in accordance with Part 2 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-57A2331, dated November 12, 2009.

(A) If any crack or corrosion is found: Repair or change the end fitting, in accordance with paragraph (n) of this AD.

(B) If no crack or corrosion is found: Apply corrosion inhibiting compound on each end fitting, in accordance with Part 2 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-57A2331, dated November 12, 2009; and do detailed and HFEC inspections of each end fitting for cracks and corrosion, in accordance with Part 3 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-57A2331, dated November 12, 2009.

(1) If any crack or corrosion is found: Repair or change the end fitting, in accordance with paragraph (n) of this AD.

(2) If no crack or corrosion is found: Apply corrosion inhibiting compound, in accordance with Part 3 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-57A2331, dated November 12, 2009, and thereafter repeat the inspections required by paragraph (m)(1)(ii)(B) of this AD.

(2) If any fillet seal damage is found, but no crack or corrosion is found: Remove the fillet seal, and do detailed and HFEC inspections of each end fitting for cracks and corrosion, in accordance with Part 1 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-57A2331, dated November 12, 2009.

(i) If any crack or corrosion is found: Repair or change the end fitting, in accordance with paragraph (n) of this AD.

(ii) If no crack or corrosion is found: Apply corrosion inhibiting compound on each end fitting, in accordance with Part 1 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-57A2331, dated November 12, 2009; and do detailed and HFEC inspections of each end fitting for cracks and corrosion, in accordance with Part 3



of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-57A2331, dated November 12, 2009.

(A) If any crack or corrosion is found: Repair or change the end fitting, in accordance with paragraph (n) of this AD.

(B) If no crack or corrosion is found: Apply corrosion inhibiting compound, in accordance with Part 3 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-57A2331, dated November 12, 2009, and thereafter repeat the inspections required by paragraph (m)(2)(ii) of this AD.

**(n) New Repair for Group 6 Airplanes**

If any crack or corrosion is found during any inspection required by paragraph (m) of this AD: Repair or change the end fitting, in accordance with Part 7 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-57A2331, dated November 12, 2009. After accomplishing the repair or change in accordance with Part 7 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-57A2331, dated November 12, 2009, do the applicable actions required by paragraph (m) of this AD.

**(o) New Optional Terminating Action for Part 1, Part 2, and Part 3 Inspections**

In lieu of doing Part 1, Part 2, or Part 3 inspections required by this AD: Repair or change the end fitting, in accordance with Part 7 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-57A2331, dated November 12, 2009. After accomplishing the repair or change in accordance with Part 7 of Boeing Alert Service Bulletin 747-57A2331, dated November 12, 2009, do the applicable actions required by paragraphs (p) and (r) of this AD. Doing the repair or change terminates the Part 1, 2, or 3 inspections for that part only of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-57A2331, dated November 12, 2009.

**(p) New Follow-On End Fitting Inspection for Groups 1 through 5 Airplanes**

For Groups 1 through 5 airplanes on which the repair or change specified in Part 7 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-57A2331, dated November 12, 2009, has been done: Do detailed and ultrasonic inspections of the end fittings for cracks and corrosion, in accordance with Part 4 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-57A2331, dated November 12, 2009. If no crack or corrosion is found, do the actions required by either paragraph (p)(1) or (p)(2) of this AD.

(1) Repeat the detailed and ultrasonic inspections of the end fittings for cracks and corrosion required by paragraph (p) of this AD.

(2) Do a detailed inspection of each end fitting for fillet seal damage, cracks, and corrosion, in accordance with Part 5 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-57A2331, dated November 12, 2009.

(i) If no fillet seal damage, crack, or corrosion is found: Repeat the inspection required by paragraph (p)(2) of this AD.

(ii) If any fillet seal damage is found, but no crack or corrosion is found: Remove the fillet seal, and do detailed and HFEC inspections of each end fitting for cracks and corrosion, in accordance with Part 5 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-57A2331, dated November 12, 2009.

(A) If any crack or corrosion is found: Repair or change the end fitting, as required by paragraph (q) of this AD.

(B) If no crack or corrosion is found: Apply corrosion inhibiting compound on each end fitting, in accordance with Part 5 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-57A2331, dated November 12, 2009; and do detailed and HFEC inspections of each end fitting for cracks and corrosion, in accordance with Part 6 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-57A2331, dated November 12, 2009.

(1) If any crack or corrosion is found: Repair or change the end fitting, as required by paragraph (q) of this AD.

(2) If no crack or corrosion is found: Apply corrosion inhibiting compound, in accordance with Part 6 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-57A2331, dated November 12, 2009; and repeat the detailed and HFEC inspections of each end fitting for cracks and corrosion, in accordance with Part 6 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-57A2331, dated November 12, 2009.

**(q) New Repair for Groups 1 through 5 Airplanes**

If any crack or corrosion is found during any inspection required by paragraph (p) of this AD: Repair or change the end fitting, in accordance with Part 7 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-57A2331, dated November 12, 2009. After accomplishing the repair or change in accordance with Part 7 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-57A2331, dated November 12, 2009, do the applicable actions required by paragraphs (p) of this AD.

**(r) New Follow-On End Fitting Inspection for Group 6 Airplanes**

For Group 6 airplanes on which the repair or change specified in Part 7 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-57A2331, dated November 12, 2009, has been done: Do a detailed inspection of the end fittings for fillet seal damage, cracks, and corrosion, in accordance with Part 4 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-57A2331, dated November 12, 2009.

(1) If no fillet seal damage, crack, or corrosion is found: Do a detailed inspection of each end fitting for fillet seal damage, cracks, and corrosion, in accordance with Part 5 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-57A2331, dated November 12, 2009.

(i) If no fillet seal damage, crack, or corrosion is found: Repeat the inspection required by paragraph (r)(1) of this AD.

(ii) If any fillet seal damage is found, but no crack or corrosion is found: Do detailed and HFEC inspections of each end fitting for cracks and corrosion, in accordance with Part 5 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-57A2331, dated November 12, 2009.

(A) If any crack or corrosion is found: Repair or change the end fitting as required by paragraph (s) of this AD.

(B) If no crack or corrosion is found: Apply corrosion inhibiting compound on each end fitting, in accordance with Part 5 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-57A2331, dated November 12, 2009; and repeat the detailed and HFEC inspections of each end fitting for cracks and corrosion, in accordance with Part 6 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-57A2331, dated November 12, 2009.

(1) If any crack or corrosion is found: Repair or change the end fitting, in accordance with Part 7 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-57A2331, dated November 12, 2009.

(2) If no crack or corrosion is found: Apply corrosion inhibiting compound, in accordance with Part 6 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-57A2331, dated November 12, 2009; and repeat the detailed and HFEC inspections of each end fitting for cracks and corrosion, in accordance with Part 6 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-57A2331, dated November 12, 2009.

(2) If any fillet seal damage is found, but no crack or corrosion is found: Do detailed and HFEC inspections of each end fitting for cracks and corrosion, in accordance

with Part 4 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-57A2331, dated November 12, 2009.

(i) If any crack or corrosion is found: Repair or change the end fitting, as required by paragraph (s) of this AD.

(ii) If no crack or corrosion is found: Apply corrosion inhibiting compound on each end fitting, in accordance with Part 4 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-57A2331, dated November 12, 2009, and do detailed and HFEC inspections of each end fitting for cracks and corrosion, in accordance with Part 6 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-57A2331, dated November 12, 2009.

(A) If any crack or corrosion is found: Repair or change the end fitting, as required by paragraph (s) of this AD.

(B) If no crack or corrosion is found: Apply corrosion inhibiting compound, in accordance with Part 6 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-57A2331, dated November 12, 2009; and repeat the detailed and HFEC inspections of each end fitting for cracks and corrosion, in accordance with Part 6 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-57A2331, dated November 12, 2009.

**(s) New Repair for Group 6 Airplanes**

If any crack or corrosion is found during any inspection required by paragraph (r) of this AD: Repair or change the end fitting, in accordance with Part 7 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-57A2331, dated November 12, 2009.

**(t) New Optional Action for Part 4, Part 5, and Part 6 Inspections**

In lieu of doing Part 4, Part 5, or Part 6 inspections required by this AD: Repair or change the end fitting, in accordance with Part 7 of the Accomplishment Instructions of

Boeing Alert Service Bulletin 747-57A2331, dated November 12, 2009. After accomplishing the repair or change in accordance with Part 7 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-57A2331, dated November 12, 2009, do the applicable actions required by paragraphs (p) and (r) of this AD.

**(u) Alternative Methods of Compliance (AMOCs)**

(1) The Manager, Seattle Aircraft Certification Office (ACO), FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the manager of the ACO, send it to the attention of the person identified in the Related Information section of this AD. Information may be e-mailed to: [9-ANM-Seattle-ACO-AMOC-Requests@faa.gov](mailto:9-ANM-Seattle-ACO-AMOC-Requests@faa.gov).

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

(3) An AMOC that provides an acceptable level of safety may be used for any repair required by this AD if it is approved by the Boeing Commercial Airplanes Organization Designation Authorization (ODA) that has been authorized by the Manager, Seattle ACO, to make those findings. For a repair method to be approved, the repair must meet the certification basis of the airplane, and the approval must specifically refer to this AD.

(4) AMOCs approved for AD 89-15-07, Amendment 39-6267 (54 FR 30009, July 18, 1989), are approved as AMOCs for the corresponding requirements of this AD.

**(v) Related Information**

(1) For more information about this AD, contact Bill Ashforth, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue SW., Renton, Washington 98057-3356; phone: (425) 917-6432; fax: (425) 917-6590; e-mail: [bill.ashforth@faa.gov](mailto:bill.ashforth@faa.gov).

(2) For service information identified in this AD, contact Boeing Commercial Airplanes, Attention: Data & Services Management, P. O. Box 3707, MC 2H-65, Seattle, Washington 98124-2207; telephone 206-544-5000, extension 1, fax 206-766-5680; e-mail [me.boecom@boeing.com](mailto:me.boecom@boeing.com); Internet <https://www.myboeingfleet.com>. You may review copies of the referenced service information at the FAA, Transport Airplane Directorate, 1601 Lind Avenue SW., Renton, Washington. For information on the availability of this material at the FAA, call 425-227-1221.

Issued in Renton, Washington, on May 18, 2012.

Michael Kaszycki,  
Acting Manager,  
Transport Airplane Directorate,  
Aircraft Certification Service.

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